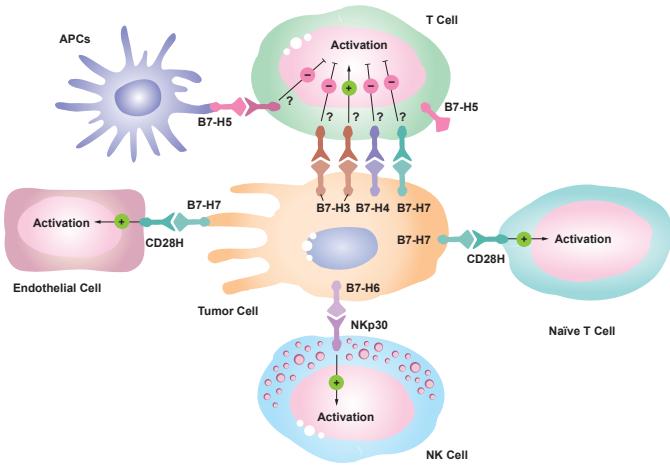


New B7 Family Immune Checkpoints

Beyond the well-characterized B7-1 (CD80), B7-2 (CD86) and PD-L1/PD-L2 pathways, newer B7 family ligands, **B7-H3**, **B7-H4**, **B7-H5 (VISTA)** and **B7-H6**, have emerged as important regulators of immune responses with significant interest in immunotherapy research. They are all overexpressed in tumors correlating with immune escape and resistance to antitumor responses.

B7-H3 [CD276] has a co-inhibitory function on T cells. It is generally associated with T cell inhibition and poor prognosis. Targeting B7-H3 not only enhances antitumor immunity but also inhibits tumor angiogenesis. **B7-H4 (VTCN1)** predominantly functions as a co-inhibitory factor, inhibiting CD4⁺ and CD8⁺ T cell proliferation. **VISTA [V-domain immunoglobulin suppressor of T cell Activation; B7-H5]** acts as an immune checkpoint with primarily inhibitory function, maintaining T cell and myeloid quiescence under physiological conditions. VISTA can bind to V-set and Ig Domain-containing 3 (VSIG-3) and to **P-selectin Glycoprotein Ligand 1 (PSGL-1)**, probably with bidirectional signaling. VISTA-PSGL-1 interaction shows that immune response can be regulated by acidic environments found in tumors. **B7-H6 (NCR3LG1)** directly engages NKP30 on natural killer (NK) cells, activating innate immunity. Its restricted expression in tumors makes it an attractive candidate for targeted therapies. **B7-H7** is widely expressed in human malignancies and its expression is associated with



poor prognostic factors. Targeting B7-H7 not only benefits anti-tumor immunity but also inhibits tumor angiogenesis.

SELECTED REFERENCES: New B7 family checkpoints in human cancers: L. Ni & C. Dong; Mol. Cancer Ther. 16, 1203 (2017) • VISTA.COMP - an engineered checkpoint receptor agonist that potently suppresses T cell-mediated immune responses: A. Prodeus, et al.; JCI Insight 2, e94308 (2017)

ELISA Assay & IHC Antibodies

B7-H3 [CD276] (human) ELISA Kit

AG-45B-0025

96 wells

Specificity: Detects soluble human B7-H3 in biological fluids.

Sensitivity: 1.6 pg/ml

Range: 3.125 to 200 pg/ml

Sample: Cell Culture Supernatant, Plasma, Serum

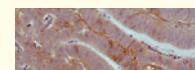
IHC GRADE

anti-CD276 (human), Rabbit Monoclonal (RM335)

REV-31-1223-00

100 µl

FIGURE: IHC staining of FFPE human colon cancer tissue section using Clone RM335 at a 1:100 dilution.



anti-VISTA, Rabbit Monoclonal (RM503)

REV-31-1395-00

100 µl

FIGURE: IHC staining of FFPE human breast cancer tissue section using Clone RM503 at a 1:100 dilution.



B7 Family Immune Checkpoint Proteins & Their Receptors

PROTEINS	PID	SIZE	SOURCE	ENDOTOXIN	SPECIES
B7-H3 [CD276] (mouse):Fc (mouse) (rec.)	CHI-MF-110B7H3	100 µg	CHO cells	<0.06EU/µg	Ms
B7-H3 [CD276] (mouse):Fc (mouse) (rec.) (non-lytic)	CHI-MF-120B7H3	100 µg	HEK 293 cells	<0.01EU/µg	Ms
B7-H3 [CD276] (human) (rec.) (untagged)	CHI-HF-200B7H3	50 µg	HEK 293 cells	<0.01EU/µg	Hu
B7-H3 [CD276] (human):Fc (human) (rec.)	CHI-HF-210B7H3	100 µg	CHO cells	<0.06EU/µg	Hu
B7-H3 [CD276] (human):Fc (mouse) (rec.)	CHI-HF-211B7H3	100 µg	CHO cells	<0.06EU/µg	Hu
B7-H3(4Ig) [B7-H3b] (human) (rec.) (His)	CHI-HF-201B7H3B	50 µg	HEK 293 cells	<0.01EU/µg	Hu
B7-H3(4Ig) [B7-H3b] (human):Fc (mouse) (rec.)	CHI-HF-211B7H3B	100 µg	HEK 293 cells	<0.005EU/µg	Hu
B7-H4 (mouse):Fc (mouse) (rec.)	CHI-MF-110B7H4	100 µg	CHO cells	<0.06EU/µg	Ms
B7-H4 (human) (rec.) (untagged)	CHI-HF-200B7H4	50 µg	HEK 293 cells	<0.01EU/µg	Hu
B7-H4 (human) (rec.) (His)	CHI-HF-201B7H4	50 µg	HEK 293 cells	<0.01EU/µg	Hu
B7-H4 (human):Fc (human) (rec.)	CHI-HF-210B7H4	100 µg	CHO cells	<0.06EU/µg	Hu
B7-H4 (human):Fc (mouse) (rec.)	CHI-HF-211B7H4	100 µg	CHO cells	<0.06EU/µg	Hu
VISTA [B7-H5] (mouse):Fc (human) (rec.)	AG-40B-0164	50 µg	HEK 293 cells	<0.01EU/µg	Ms
VISTA [B7-H5] (human) (rec.) (His)	AG-40B-0177	10 µg 3 x 10 µg	HEK 293 cells	<0.01EU/µg	Hu
VISTA [B7-H5] (human) (rec.) (His)	CHI-HF-201B7H5	50 µg	HEK 293 cells	<0.01EU/µg	Hu
VISTA [B7-H5] (human):Fc (human) (rec.)	AG-40B-0163	50 µg	HEK 293 cells	<0.01EU/µg	Hu, Ms
B7-H6 (human):Fc (mouse) (rec.)	CHI-HF-211B7H6	100 µg	HEK 293 cells	<0.005EU/µg	Hu

Multimeric VISTA – Immunosuppressive *In Vivo* Agonist

VISTA [B7-H5] is a negative checkpoint regulator that potently suppresses T cell activation. The recombinant VISTA protein needs to be multimerized to be active as a soluble ligand. The multimeric protein VISTA (mouse):COMP (mouse), but not VISTA-Fc, functions as an immunosuppressive agonist *in vivo* inhibiting the proliferation of CD4⁺ T cells. This multimeric VISTA also binds PSL-1 expressed on leukocytes at acidic pH, but not at the physiological pH 7.

LIT: VISTA.COMP - an engineered checkpoint receptor agonist that potently suppresses T cell-mediated immune responses: A. Prodeus, et al.; JCI Insight 2, e94308 (2017) • VISTA is an acidic pH-selective ligand for PSL-1: R.J. Johnston, et al.; Nature 574, 565 (2019)

PROTEINS	PID	SIZE	SOURCE	ENDOTOXIN	SPECIES
PSL-1 (human):Fc (human) (rec.)	AG-40B-0190	50 µg 500 µg	HEK 293 cells	<0.01EU/µg	Hu
VISTA (human):COMP (mouse) (rec.) (His)	AG-40B-0183	50 µg	HEK 293 cells	<0.01EU/µg	Hu
VISTA (mouse):COMP (mouse) (rec.) (His)	AG-40B-0181	50 µg	HEK 293 cells	<0.01EU/µg	Ms

TAPBPL (TAP Binding Protein-like) – B7 Family Related Molecule

TAPBPL behaves like other immune checkpoint proteins. A soluble recombinant TAPBPL-Fc fusion protein inhibited the proliferation and activation of CD4 and CD8 T cells *in vitro* and ameliorates autoimmune disease EAE *in vivo*.

LIT: Identification of TAPBPL as a novel negative regulator of T-cell function: Y. Lin, et al.; EMBO Mol. Med. 13, e13404 (2021) • Administration of Recombinant TAPBPL Protein Ameliorates Collagen-Induced Arthritis in Mice: Z. Zhang, et al.; Int. J. Mol. Sci. 24, 13772 (2023)

PROTEINS	PID	SIZE	SOURCE	ENDOTOXIN	SPECIES
TAPBPL (human):Fc (human) (rec.)	AG-40B-0217	50 µg 3 x 50 µg	HEK 293 cells	<0.01EU/µg	Hu
TAPBPL (mouse):Fc (human) (rec.)	AG-40B-0216	50 µg 3 x 50 µg	HEK 293 cells	<0.01EU/µg	Ms